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DISTRIBUTION

of the

VARIETIES OF FLAX

grown in the

PRAIRIE PROVINCES

(1950 - 1965)

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CIRCULAR NO. 33

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LINE ELEVATORS FARM SERVICE

Winnipeg, Manitoba

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November, 1966

DISTRIBUTION OF THE VARIETIES OF FLAX
GROWN IN THE PRAIRIE PROVINCES
(1950 to 1965)

Flax variety surveys have been made annually by the Line Elevators Farm Service since 1949. The results of surveys made during the 13-year period, 1949 to 1961, have been published.* This circular presents the results of surveys made at 3-year intervals since 1950.

METHODS

Each year, usually in June, each Agent (country grain buyer) in Manitoba, Saskatchewan and Alberta of the Line Elevator Companies associated with the Line Elevators Farm Service was provided with a specially prepared questionnaire or Variety Survey Form. The Agent was asked to complete the form by estimating and recording the percentage of the total flax acreage in the district served by his elevator (shipping point) that individual flax varieties occupied. The number of Agents in the Prairie Provinces that returned usable flax variety survey forms each year varied from 657 in 1950 to 1,003 in 1961.

The percentage acreage estimates submitted by Agents were analysed and compiled by provinces, and for the three prairie provinces as a unit. To determine the percentage of the total provincial or prairie flax acreage each variety occupied, the average of the acreage percentage estimates for individual shipping points was weighted in accordance with the total acreage of flax grown in the district. The seeded acreages of flax by shipping points, as determined by the Canadian Wheat Board, were used for this purpose.

RESULTS

The percentage of the total flax acreage of Manitoba, Saskatchewan and Alberta, and of the Prairie Provinces, occupied by individual varieties at 3-year intervals from 1950 to 1965 are summarized in the accompanying tables. A few highlights of the surveys are presented below.

MANITOBA (Table 1)

The development and release of improved strains of flax by Federal Experimental Farms and Research Stations in the United States and Canada, and by provincial Universities, has been responsible for a continual change in the importance and distribution of the varieties of flax grown in Manitoba.

*F. J. Greaney and J. Barnes. Distribution of Flax Varieties in the Prairie Provinces (1949 to 1961). Line Elevators Farm Service Circular No. 26, January, 1963, Winnipeg, Manitoba.

The variety Dakota, first distributed to Canadian farmers in 1947, was the most widely grown flax variety in Manitoba in 1950. In that year it accounted for 59.4% of the total provincial flax acreage. Royal, a variety produced at the University of Saskatchewan and released in 1939, was the second most important variety in 1950. Within a few years, however, both varieties were replaced by new improved varieties - Marine, Sheyenne, Redwood and Rocket.

Marine was the leading variety in Manitoba in 1956 and again in 1959. In these years it occupied 43.8% and 47.7% of the total provincial flax acreage, respectively. Marine reached its peak of popularity in 1962 when it accounted for 56% of the total. In 1963, Marine, as well as the varieties Cree, Army and Sheyenne, were found to be susceptible to a new race of flax rust (race 300). Because of this weakness they were removed from the recommended list of flax varieties for growing in Manitoba. The result was that the acreage seeded to these varieties was much reduced in 1965. Varieties that were resistant to race 300 of flax rust - Redwood, Raja and Bolley - replaced Marine in that year.

Redwood is a medium late maturing, high yielding variety that ripens uniformly. It is resistant to rust, including race 300, to wilt, and is quite tolerant to pasmo. It was licensed in 1951 and soon became a very popular variety in Manitoba. Redwood was the second most important variety in this province in 1956, 1959 and 1962, and the leading variety in 1965. It is, however, recommended for southern and central Manitoba only. It can be expected that in the years ahead Redwood will be superseded by Bolley and other improved flax varieties. Bolley, introduced in 1964, was the second most prominent variety in Manitoba in 1965.

It is evident from Table 1 that a relatively small number of varieties account for a very large proportion of the area devoted each year to flax in Manitoba. In 1950, for instance, three varieties - Dakota, Royal and Rocket - accounted for 86.9% of the total provincial flax acreage. In the last year of the surveys reported in this circular, three varieties - Redwood, Bolley and Raja - occupied 88.5% of the total.

SASKATCHEWAN (Table 2)

The relatively old varieties Dakota and Royal, owing mainly to their susceptibility to rust and other diseases, declined steadily in popularity in Saskatchewan as varieties that matured earlier and more uniformly, and possessed higher disease resistance were developed and distributed.

Royal was the most prominent variety in Saskatchewan in 1950 and 1953. However, its popularity declined drastically in 1956. By 1965 the percentage of the provincial flax acreage occupied by this variety was down to 1.3%. The acreage of Dakota also declined progressively from 1950 to 1962. In 1965 it was down to 0.7%. Royal and Dakota, which in 1950 occupied 71.5% of the total Saskatchewan flax acreage,

were partially replaced by Rocket in 1953. However, the acreage of Rocket declined progressively after 1956. It was replaced by the newer varieties Redwood, Raja, Marine and Norland.

Redwood was the dominant flax variety in Saskatchewan in 1956, 1959, 1962 and 1965. In those years the acreage devoted to this variety ranged from 39.7% in 1956 to 34.3% in 1965.

Marine, released in 1952, had become the second most extensively grown variety in Saskatchewan by 1956. However, it lost this position to Norland, a selection from the old variety Victory, in 1959, 1962 and 1965. The popularity of Norland increased steadily from 1954, the year of its initial distribution, to 1965.

Redwing, because of its earliness and ability to yield well, was grown to some extent in the northern areas of Saskatchewan in 1950, 1953 and 1956. The acreage of Redwing declined after 1956. In 1965 it accounted for only 2.9% of the total Saskatchewan flax acreage.

As might be expected, the acreage of many of the old varieties, especially Viking and Bison, declined steadily as new improved strains of flax were developed and distributed. They were replaced by the new improved rust resistant varieties Redwood, Marine, Raja and Norland. These four varieties accounted for no less than 84.7% of the Saskatchewan flax acreage in 1965.

ALBERTA (Table 3)

The early maturing variety Redwing was first distributed to farmers in 1932. In 1953, twenty-one years after it was released, Redwing was the leading flax variety in the province, accounting for 57.6% of the total flax acreage. It remained the most prominent variety in Alberta until 1959 when it gave up first place to Redwood. The acreage devoted to Redwing declined progressively after 1959.

Redwood gained rapidly in popularity in Alberta after its introduction in 1951. By 1959 it had become the most widely grown variety in the province, accounting for 36.8% of the flax acreage. It was the dominant variety in 1962 and 1965.

Because of its earliness Raja, licensed in 1953, was widely accepted by Alberta flax growers. By 1959 it had become the third most important flax variety in Alberta accounting for 17.1% of the provincial flax acreage. It retained this position in 1962. In 1965, however, it climbed to second place. Marine, an early variety with the ability to yield well, was never very widely grown in Alberta. In no year did it occupy more than 10.2% of the provincial flax acreage.

Each year a relatively small number of varieties accounted for a very large proportion of the total flax acreage of Alberta. In 1950, for instance, three varieties - Redwing, Royal and Bison - occupied as much as 96.7% of the total. Four flax varieties - Redwood, Raja, Marine

and Bolley, varieties that were unknown in 1950 - accounted for 74.8% of the Alberta flax acreage in 1965. The popularity of these newer varieties was due to their resistance to rust, particularly to race 300, to wilt, and to their ability to produce high yields of seed of high oil content and quality.

PRAIRIE PROVINCES (Table 4)

Of the eight flax varieties reported as grown in the Prairie Provinces in 1950 only the variety Redwing was grown on any significant acreage in 1965. Bison, Viking, Royal, Rocket and Victory, varieties that were important in the early years of the survey period, were replaced by new improved varieties; varieties possessing more resistance to flax rust and other diseases; varieties that matured earlier; and varieties that produced seed of high oil content and of better quality for the most part.

In 1956, 1959 and 1965, Redwood was the leading flax variety in the Prairie Provinces. It shared this position with Marine in 1962. Each year during the period 1956 to 1965 Redwood accounted for approximately one third of the total prairie flax acreage.

When it was introduced in 1952 the variety Marine, which is about as early in maturity as Redwing, possessed good resistance to rust and wilt, and had considerable tolerance to pasmo. For these reasons it soon became a popular variety in the Prairie Provinces, particularly in Manitoba. In 1956, four years after it was introduced, Marine occupied 21.7% of the prairie flax acreage. This increased to 28.4% in 1962. In 1963, unfortunately, Marine was found to be susceptible to a new race of stem rust (race 300). Owing to this weakness it was removed from the recommended lists of flax varieties for growing in Manitoba, Saskatchewan and Alberta. In consequence, the acreage of Marine declined drastically after 1963. In 1965 it accounted for only 7% of the prairie flax acreage.

The rust resistant variety Bolley was licensed for growing in Canada in 1964 as a replacement for Marine and other newly rust susceptible varieties. A year later, Bolley was grown on 16.8% of the acreage devoted to flax in the Prairie Provinces.

Raja, an early variety which was first distributed to farmers in 1953, was grown on a relatively small acreage in 1953 and 1956. In 1959, however, the acreage seeded to Raja increased considerably. In that year it accounted for 13.2% of the total prairie acreage. The popularity of Raja continued to increase until 1965.

One of the most striking features of the data presented in Table 4 is that in every survey year a relatively small number of varieties accounted for a very large proportion of the area devoted to this crop in the Prairie Provinces. In 1950 three varieties - Dakota, Royal and Redwing - accounted for 81.6% of the prairie flax acreage. In 1956 four varieties - Redwood, Marine, Redwing and Rocket - accounted for 81.9% of

the prairie flax acreage. Four varieties - Redwood, Raja, Norland and Bolley - occupied 82.2% of the total acreage devoted to flax in the Prairie Provinces in 1965.

The main object of flax improvement is, of course, to develop new varieties that are superior to existing ones in one or more characteristics of economic importance, such as yield, oil content and quality, and equal to them in others. A recent trend has been to develop flax varieties for specialized regional adaptation. Noralta, a variety that was licensed in 1965 is a good example. Noralta was developed especially for growing in the northern areas of the Prairie Provinces.

It is safe to say that in the years ahead there will be a continual development and distribution of new improved varieties of flax suitable for growing in the Prairie Provinces. The new introductions will replace old inferior flax varieties. They will be more resistant to rust and other diseases, higher yielding, superior in oil content and quality, earlier in maturity, and more adaptable to special areas of the Prairie Provinces.

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The Line Elevators Farm Service is indebted to all Agents, past and present, of the Line Elevator Companies, sponsors of the Farm Service Department who, during the 15-year period 1950 to 1965, provided the basic information of the flax varietal surveys reported in this circular. Special credit is due to J. Barnes, Chief Seed technician, Line Elevators Farm Service, for his assistance in recording and tabulating the survey results.

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November, 1966

F. J. Greaney, Director

Table 1. Distribution of flax varieties. Estimated percentage of the total flax acreage of Manitoba occupied by individual varieties of flax at 3-year intervals since 1950. Varieties arranged in order of importance for 1965.

Variety	Percentage of Acreage ^{1/}					
	1950	1953	1956	1959	1962	1965
Redwood	-	15.1	23.2	18.6	18.8	32.7
Bolley	-	-	-	-	-	29.1
Raja	-	(*)	2.6	16.1	11.3	26.7
Marine	-	8.0	43.8	47.7	56.0	4.8
Norland	-	-	0.2	1.8	2.5	2.0
Sheyenne	1.2	20.2	14.6	8.6	5.1	1.4
Rocket	9.3	27.5	4.3	0.5	0.6	0.7
Redwing	5.9	3.1	2.3	1.7	3.0	0.6
Army	-	-	-	-	0.8	0.4
Royal	18.2	6.9	0.8	0.2	0.1	0.3
Cree	-	-	-	-	(*)	0.3
Dakota	59.4	9.6	1.7	0.2	0.4	(*)
Victory	3.7	9.2	3.5	1.5	(*)	-
Bison	0.2	0.1	0.1	-	-	-
Viking	0.7	(*)	-	-	-	-
Others	1.4	0.3	2.9	3.1	1.4	1.0
Total	100.0	100.0	100.0	100.0	100.0	100.0

^{1/} The asterisk (*) indicates a variety reported as grown, but the estimate of acreage was less than 0.1% of the total flax acreage of Manitoba.

Table 2. Distribution of flax varieties. Estimated percentage of the total flax acreage of Saskatchewan occupied by individual varieties of flax at 3-year intervals since 1950. Varieties arranged in order of importance for 1965.

Variety	Percentage of Acreage ^{1/}					
	1950	1953	1956	1959	1962	1965
Redwood	-	5.4	39.7	37.1	33.3	34.3
Norland	-	-	1.6	20.0	25.0	31.7
Raja	-	(*)	1.3	8.8	13.0	9.5
Marine	-	2.8	19.1	13.1	16.0	9.2
Bolley	-	-	-	-	-	5.6
Rocket	2.2	17.3	16.4	8.1	4.4	3.1
Redwing	9.2	6.4	6.5	5.9	3.4	2.9
Royal	49.7	30.9	4.9	2.6	2.4	1.3
Dakota	21.8	15.2	3.2	0.9	0.6	0.7
Cree	-	-	-	-	0.1	0.6
Sheyenne	1.0	7.6	1.4	0.3	0.4	0.3
Army	-	-	-	-	0.2	0.2
Victory	6.4	8.8	2.3	1.2	(*)	(*)
Bison	1.9	2.2	1.2	0.4	(*)	-
Viking	5.7	(*)	-	-	-	-
Others	2.1	3.4	2.4	1.6	1.2	0.6
Total	100.0	100.0	100.0	100.0	100.0	100.0

^{1/} The asterisk (*) indicates a variety reported as grown, but the estimate of acreage was less than 0.1% of the total flax acreage of Saskatchewan.

Table 3. Distribution of flax varieties. Estimated percentage of the total flax acreage of Alberta occupied by individual varieties of flax at 3-year intervals since 1950. Varieties arranged in order of importance for 1965.

Variety	Percentage of Acreage ^{1/}					
	1950	1953	1956	1959	1962	1965
Redwood	-	3.7	35.2	36.8	34.0	32.8
Raja	-	(*)	(*)	17.1	21.9	28.9
Redwing	54.6	57.6	42.9	31.0	26.1	19.7
Marine	-	0.2	9.2	8.1	10.2	8.9
Bolley	-	-	-	-	-	4.2
Sheyenne	(*)	0.4	2.0	1.8	4.3	2.1
Norland	-	-	(*)	(*)	0.5	0.7
Dakota	1.5	14.2	2.9	0.9	1.2	0.4
Royal	20.2	16.1	2.3	0.3	0.4	0.3
Army	-	-	-	-	(*)	0.3
Rocket	0.3	0.2	2.9	2.2	0.3	0.2
Cree	-	-	-	-	(*)	0.2
Bison	21.9	5.7	1.0	0.3	(*)	-
Victory	0.9	1.1	1.2	0.7	(*)	(*)
Viking	0.3	(*)	-	-	-	-
Others	0.3	0.8	0.4	0.8	1.1	1.3
Total	100.0	100.0	100.0	100.0	100.0	100.0

^{1/} The asterisk (*) indicates a variety reported as grown, but the estimate of acreage was less than 0.1% of the total flax acreage of Alberta.

Table 4. Distribution of flax varieties. Estimated percentage of the total flax acreage of the Prairie Provinces occupied by individual varieties of flax at 3-year intervals since 1950. Varieties arranged in order of importance for 1965.

Variety	Percentage of Acreage ^{1/}					
	1950	1953	1956	1959	1962	1965
Redwood	-	8.3	35.7	33.3	28.3	33.1
Raja	-	(*)	1.3	13.2	15.5	22.6
Bolley	-	-	-	-	-	16.8
Norland	-	-	1.0	9.2	8.5	9.7
Marine	-	3.9	21.7	18.4	28.4	7.0
Redwing	12.8	16.7	13.1	13.9	11.0	5.8
Rocket	5.4	16.9	11.4	4.4	1.7	1.2
Sheyenne	0.9	10.2	4.0	2.5	3.4	1.2
Royal	31.5	19.6	3.6	1.3	0.9	0.6
Cree	-	-	-	-	(*)	0.4
Dakota	37.3	13.1	2.8	0.8	0.7	0.3
Army	-	-	-	-	0.3	0.3
Bison	3.3	2.3	1.0	0.3	(*)	-
Victory	4.5	7.2	2.3	1.1	(*)	(*)
Viking	2.7	(*)	-	-	-	-
Others	1.6	1.8	2.1	1.6	1.3	1.0
Total	100.0	100.0	100.0	100.0	100.0	100.0

^{1/} The asterisk (*) indicates a variety reported as grown, but the estimate of acreage was less than 0.1% of the total flax acreage of the Prairie Provinces.

